

REMARKS

Claims 1-4 and 19 have been amended. Claims 21-25 have been added. Therefore, claims 1-7 and 13-25 are currently pending in the case. Further examination and reconsideration of the presently claimed application are respectfully requested.

Section 112, 2nd Paragraph, Rejections

Claims 1-7 and 19-20 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Office Action states that "In claims 1, and 19 applicant recites that no water is deposited on the polishing pad. However, the disclosed slurry solutions themselves contain water, thus this recitation is deemed inaccurate. It is believed that the intention was to recite that no additional water is supplied to the pad other than initially provided in the slurry during polishing."

Although Applicant believes claims 1-7 and 19-20 were definite as originally written, these claims have been amended for further clarification. In particular, independent claim 1 has been amended to recite in part: "polishing the topography with a polishing solution on a polishing pad without adding water to the polishing solution that is on the polishing pad during the polishing." Independent claim 19 has been amended to recite a similar limitation.

Applicant believes that the amendments to claims 1 and 19 further point out and distinctly claim the subject matter which Applicant regards as the invention. Therefore, Applicant believes that claims 1 and 19 as well as claims 2-7 and 20, which depend from claims 1 and 19, respectively, are definite. Accordingly, removal of the § 112, second paragraph, rejections of claims 1-7 and 19-20 is respectfully requested.

Section 102 Rejections

Claims 1-7 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,130,163 to Yi et al. (hereinafter "Yi"). As will be set forth in more detail below, the § 102 rejections of claims 1-7 are respectfully traversed.

The standard for "anticipation" is one of fairly strict identity. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. Of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), MPEP 2131. The cited art does not teach or suggest all limitations of the currently pending claims, some distinctive limitations of which are set forth in more detail below.

The cited art does not teach polishing a semiconductor topography with a polishing solution on a polishing pad without adding water to the polishing solution that is on the polishing pad during the polishing. Amended independent claim 1 recites: "A method for processing a semiconductor topography, comprising polishing the topography with a polishing solution on a polishing pad without adding water to the polishing solution that is on the polishing pad during the polishing." Support for the amendments to claim 1 may be found in the Specification, for example, on page 20, line 1 - page 21, line 28.

Yi discloses stabilization of slurry used in chemical mechanical polishing of semiconductor wafers by adjustment of the pH of deionized water. Yi, however, does not disclose polishing a semiconductor topography with a polishing solution on a polishing pad without adding water to the polishing solution that is on the polishing pad during the polishing. For example, Yi states that "a system flush line between the deionized water tank 107 and the CMP tool 103 is provided. This flush line provides water to the CMP tool for pad or wafer rinsing and system flush. The foregoing elements of the system 101 are of conventional design." (Yi -- col. 2, lines 60-64.) Therefore, Yi teaches adding water to a polishing solution that is on a polishing pad of a CMP tool during polishing for wafer rinsing as in conventional polishing processes. As such, Yi does not teach polishing a semiconductor topography with a polishing solution on a polishing pad without adding water to the polishing solution that is on the polishing pad during the polishing, as recited in claim 1. Consequently, Yi does not teach all limitations of claim 1.

For at least the reasons stated above, Applicants assert that independent claim 1, as well as claims dependent therefrom, are not anticipated by the cited art. Accordingly, removal of the § 102 rejection of claims 1-7 is respectfully requested.

Section 103 Rejections

Claim 13-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yi in view of U.S. Patent No. 6,494,985 to Sotozaki et al. (hereinafter "Sotozaki"). As will be set forth in more detail below, the §103(a) rejections of claims 13-18 are respectfully traversed.

To establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPEP 2143.03. Obviousness cannot be established by combining or modifying the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion or incentive to do so. *In re Bond*, 910 F. 2d 81, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). The cited art does not teach or suggest all limitations of the currently pending claims, some distinctive limitations of which are set forth in more detail below.

The cited art does not teach or suggest depositing water on a polishing pad in a plurality of dispense intervals during polishing of a semiconductor topography to reduce a rate of change of a pH of a polishing solution on the topography. Independent claim 13 recites: "A method for processing a semiconductor topography, comprising depositing water on a polishing pad in a plurality of dispense intervals during polishing of the topography to reduce a rate of change of a pH of a polishing solution on the topography."

Yi does not disclose depositing water on a polishing pad in a plurality of dispense intervals during polishing of a semiconductor topography to reduce a rate of change of a pH of a polishing solution on the topography. For example, as set forth in more detail above, Yi discloses depositing water on a polishing pad during polishing of wafers for wafer rinsing. However, Yi does not disclose depositing the water on the polishing pad in a plurality of dispense intervals. Consequently, Yi does not disclose depositing water on a polishing pad in a plurality of dispense intervals during polishing of a semiconductor topography to reduce a rate of change of a pH of a polishing solution on the topography, as recited in claim 13.

Sotozaki cannot be combined with Yi to overcome the deficiencies therein. For example, Sotozaki discloses a method and an apparatus for polishing a substrate. Sotozaki states that "it is necessary to supply a certain amount of pure water to the polishing cloth 11 to remove the abrasive liquid therefrom...it is desirable that a small amount of pure water is first supplied, and the supply of water is gradually

increased." (Sotozaki -- col. 8, lines 53-63.) Therefore, Sotozaki teaches increasing the amount of water supplied to the polishing cloth gradually. However, Sotozaki does not teach depositing the water on the polishing cloth in a plurality of dispense intervals. In contrast, Sotozaki appears to suggest that water is continuously deposited on the polishing cloth and the amount of water supplied to the polishing cloth is gradually increased over time (e.g., by continuously increasing the flow rate). As such, Sotozaki does not disclose depositing water on a polishing pad in a plurality of dispense intervals during polishing of a semiconductor topography to reduce a rate of change of a pH of a polishing solution on the topography, as recited in claim 13. Consequently, Sotozaki does not teach all limitations of claim 13 and cannot be combined with Yi to overcome deficiencies therein.

Therefore, none of the cited art, either individually or in any combination thereof, teaches or suggests depositing water on a polishing pad in a plurality of dispense intervals during polishing of a semiconductor topography to reduce a rate of change of a pH of a polishing solution on the topography, as recited in claim 13. Consequently, the cited art does not teach or suggest all limitations of claim 13.

For at least the reasons stated above, claim 13 is patentably distinct over the cited art. Therefore, claims 14-18, which depend from claim 13, are also patentably distinct over the cited art for at least the same reasons. Accordingly, removal of the § 103(a) rejections of claims 13-18 is respectfully requested.

Allowable Subject Matter

Claims 19-20 were deemed allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. § 112, second paragraph, set forth in the Office Action. Applicant sincerely appreciates the Examiner's recognition of the patentable subject matter recited in claims 19-20. As set forth in more detail above, Applicant believes the amendments to claim 19 overcome the § 112, second paragraph, rejections set forth in the Office Action. Accordingly, allowance of claims 19-20 is respectfully requested.

Patentability of the Added Claims

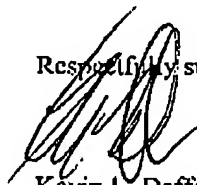
The present amendment adds claims 21-25, which are dependent from claim 1. Therefore, claims 21-25 are patentably distinct over the cited art for at least the same reasons set forth above. Accordingly, allowance of claims 21-25 is respectfully requested.

CONCLUSION

This response constitutes a complete response to all issues raised in the Office Action mailed December 17, 2003. Furthermore, the art cited but not relied upon is not believed to be pertinent to the patentability of the present claims. In view of remarks traversing rejections, Applicants assert that pending claims 1-7 and 13-25 are in condition for allowance. If the Examiner has any questions, comments, or suggestions, the undersigned attorney earnestly requests a telephone conference.

No fees are required for filing this amendment; however, the Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment, to Conley Rose, P.C. Deposit Account No. 03-2769/5298-07600.

Respectfully submitted,



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Date: March 10, 2004
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